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Iron-containing poly(propylene imine) dendromesogens with photoactive properties

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Abstract

Here, we report the first results of investigation the local structure and photoactive properties of iron-containing dendromesogens based on decyloxybenzoate substituted poly(propylene imine) dendrimers of the first to fifth generations. Iron ions existing in a high-spin state are coordinated in dendrimer ligands by two kinds of iron-complexing sites with an octahedral and a tetrahedral symmetry. Octahedral (high-symmetry) centers are located at the border of the dendrimeric core, while the tetrahedral centers with strong rhombic distortion of iron environment are distributed throughout all branching of the dendrimeric core. It has been found that all iron-containing dendromesogens exhibit light-harvesting and fluorescence properties. © 2010 Wiley-VCH Verlag GmbH & Co. KGaA, Weinheim.

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Keywords

Dendrimers, EPR spectroscopy, Fluorescence, Liquidcrystalline polymers, Moessbauer spectroscopy